Communicating Geospatial Information through the Web

Implementations of GeoRSS and KML at UAH

For ESDSWG Meeting, October 2008

Ken Keiser
Information Technology and Systems Center
University of Alabama in Huntsville
kkeiser@itsc.uah.edu

GeoRSS

- Encodes geographic location information in an RSS feed.
  - GML
  - **Simple**
- Growing (built-in) support in visualization tools

KML

- XML representation of geographic information
  - Features
  - Annotations
  - Display context
- Supported by growing number of visualization tools.

Real Time Mission Monitor

The Real Time Mission Monitor (**RTMM**) is an interactive visualization application that provides situational awareness, field asset management to enable adaptive and strategic decision making during field campaigns.

- Deployed for missions in Cape Verde, Costa Rica, and SMAP Validation Experiment at Wallops Flight Facility
- 2008 ARCTAS missions in Alaska and Canada

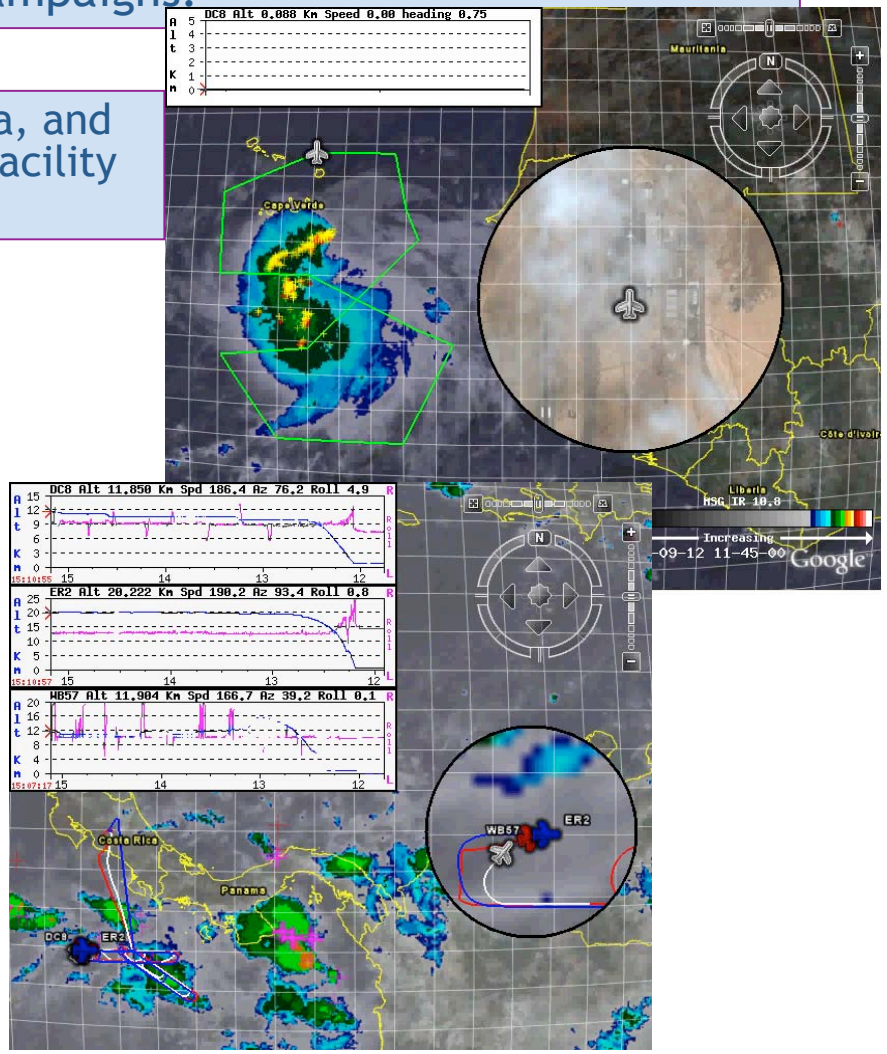
- Integrates satellite, airborne and surface data
- Displays model and forecast parameter fields
- Tracks airborne vehicle state information

RTMM Facilitates

- Interactive flight track waypoints
- Pre-flight planning
- In-flight monitoring and adaptive strategies
- Post-flight review and analyses

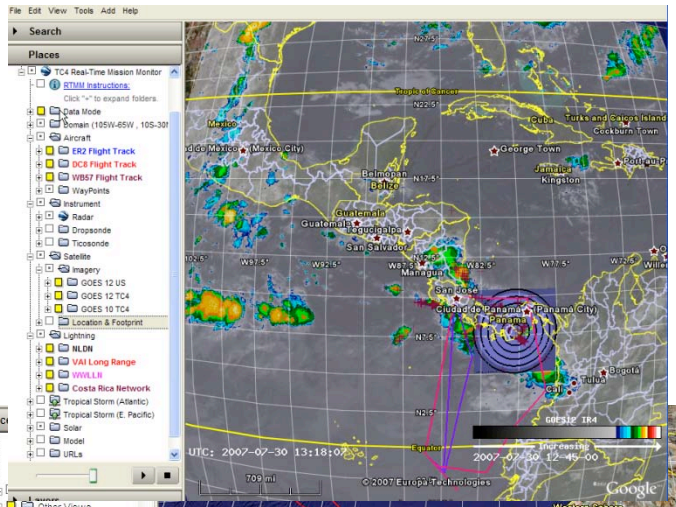
Planned Enhancements

- Broader suite of real time airborne instrument data transfer and display
- Improved user functionality and menus
- OGC sensor web standard protocols and interfaces

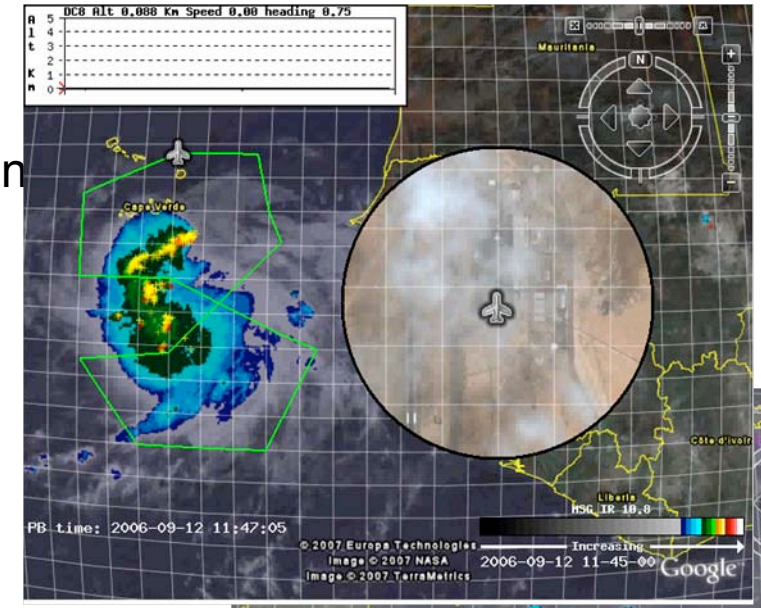


Real-Time Mission Monitor (KML)

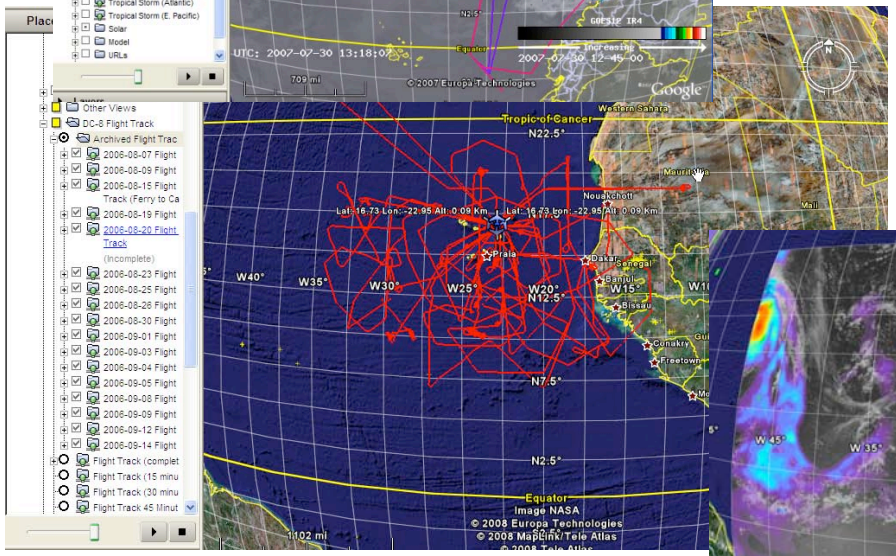
Parameter display



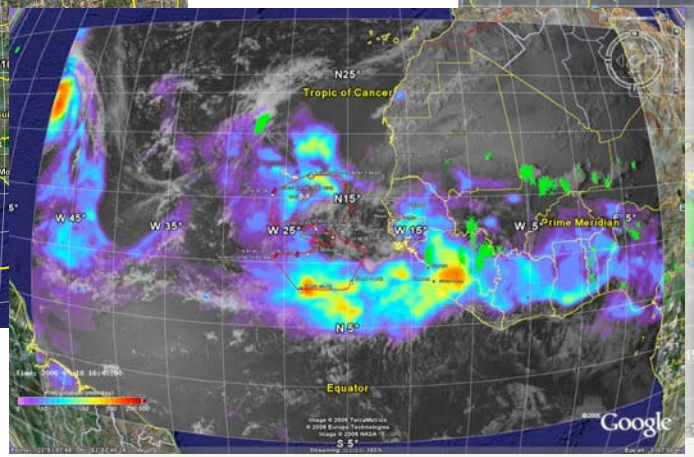
Flight Plan

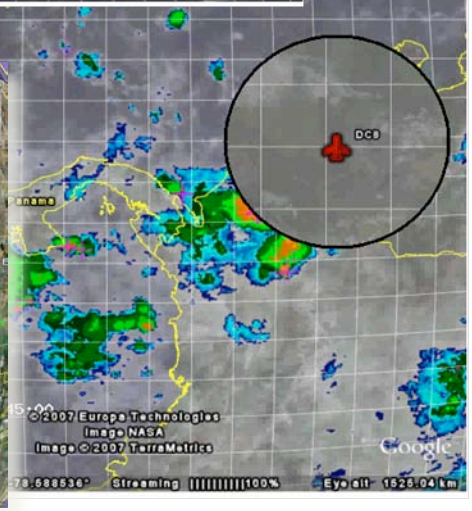


Aircraft positions



Flight Path Tracks





Satellite Data Overlays

SCOOP
(SURA Coastal Ocean Observing Prediction)

A cyberinfrastructure for coastal modeling and observations. An IOOS test bed for complete data system covering model execution, data transport, archival, catalog, data search and order.

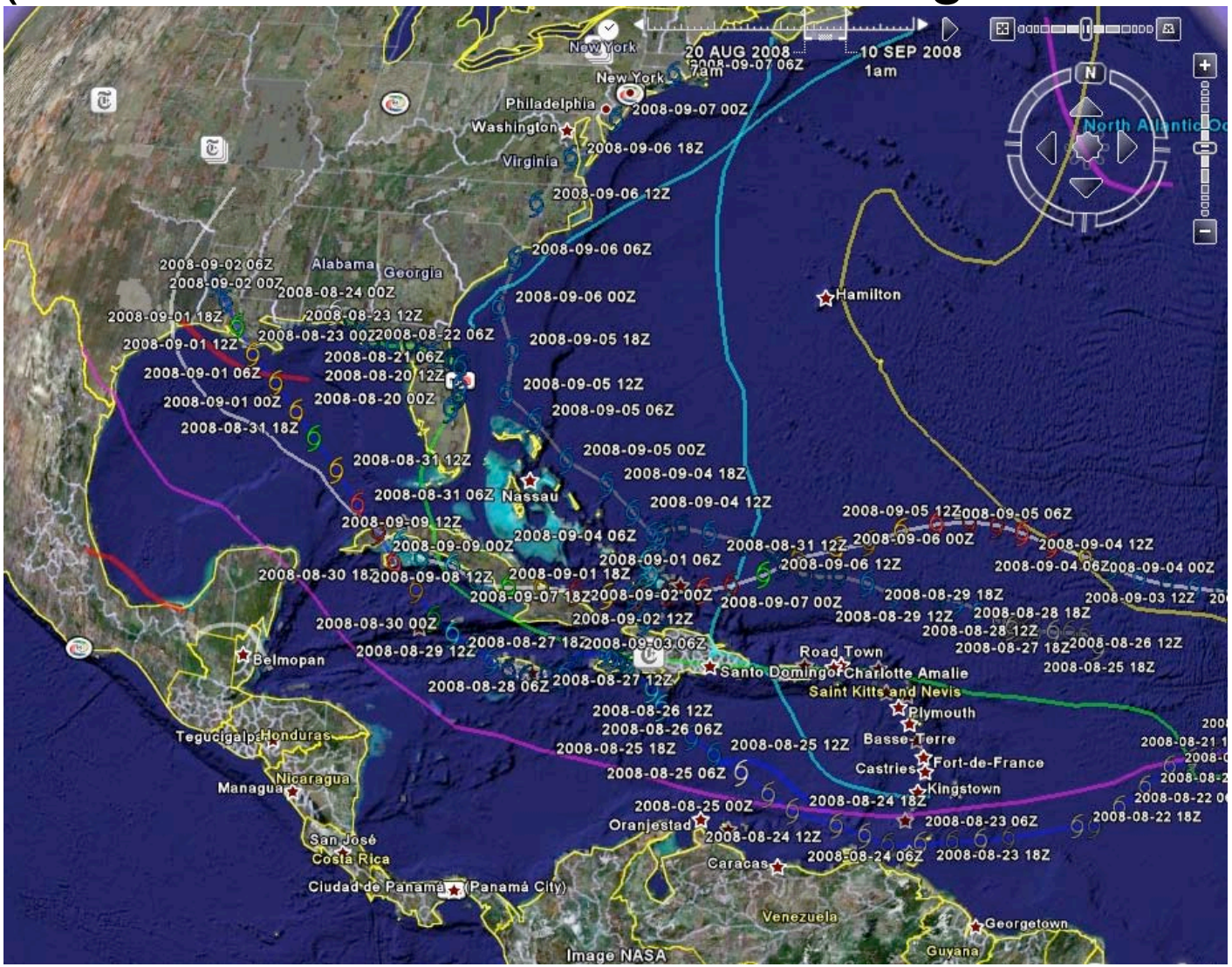
KML

- Provide quick review of graphical features – e.g. storm tracks

GeoRSS

- Investigating use to advertise availability of new data products

SCOOP
(SURA Coastal Ocean Observing Prediction)



2008 Storms (so far) - animated chronologically
http://scoop.sura.org/Storms/

Plume Modeling (Easy RAMS)

Providing a capability to easily generate plume models using RAMS (and other) atmospheric inputs – for decision support.

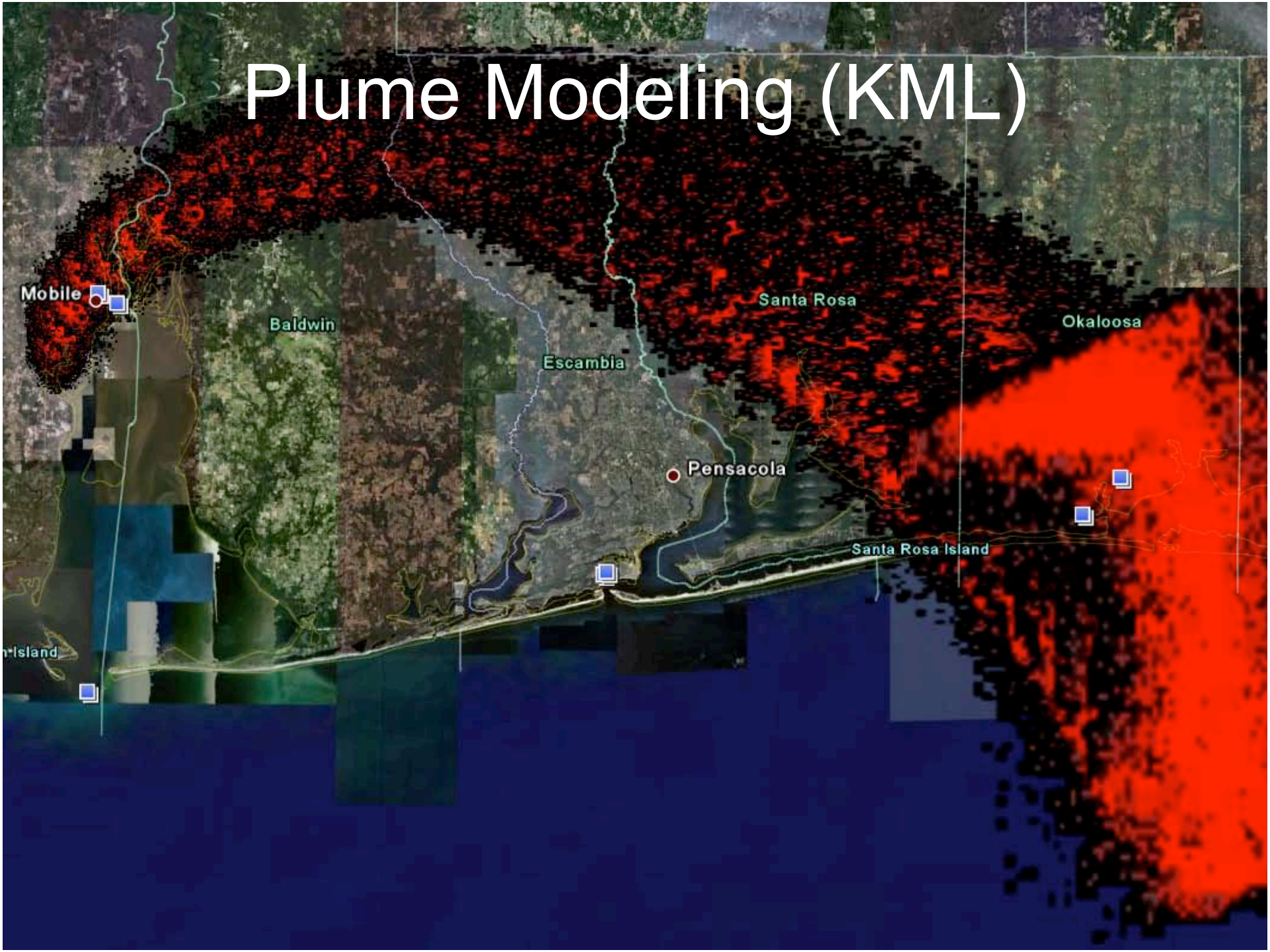
KML

•Animated time-series images of output data
•Provides integration with state-wide visualization capability (Virtual Alabama)

GeoRSS

•Makes vector representation available for analysis by other applications (e.g. SafeSchools)
•Non-proprietary integration with other systems

Plume Modeling (KML)



SafeSchool Mapping

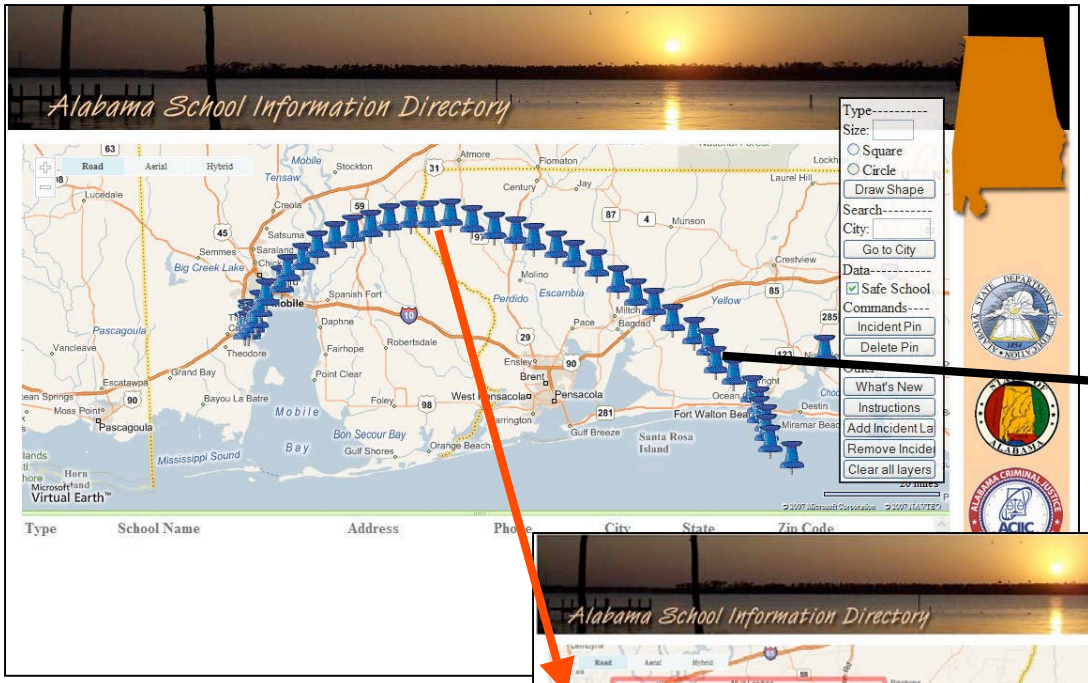
Providing a way to manage school contact information, locations, and emergency plans – and make them available for decision support and first responders.

GeoRSS

•Access/Ingest incidents from other applications (e.g. Plume modeling, law enforcement, etc)
•Spatial reference plus metadata – and other links

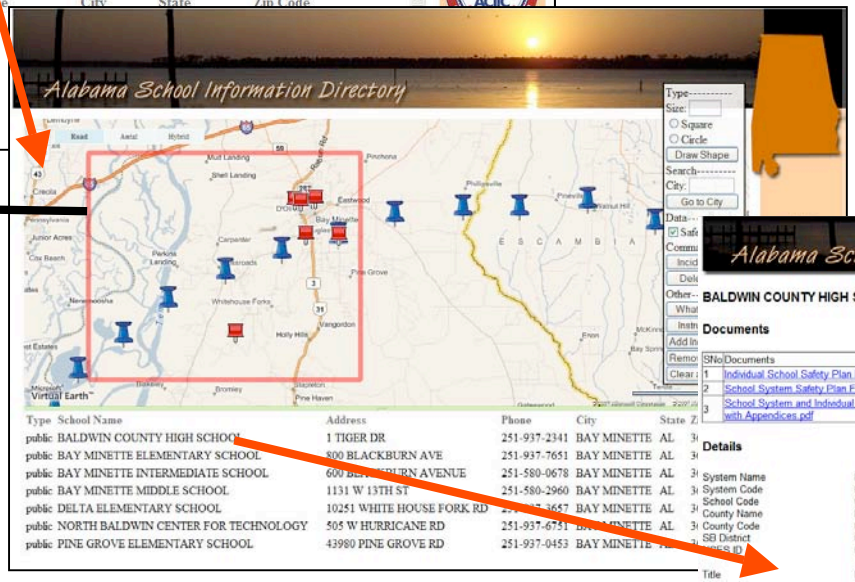
KML

•Event extents for spatial queries
•Interoperable with most systems



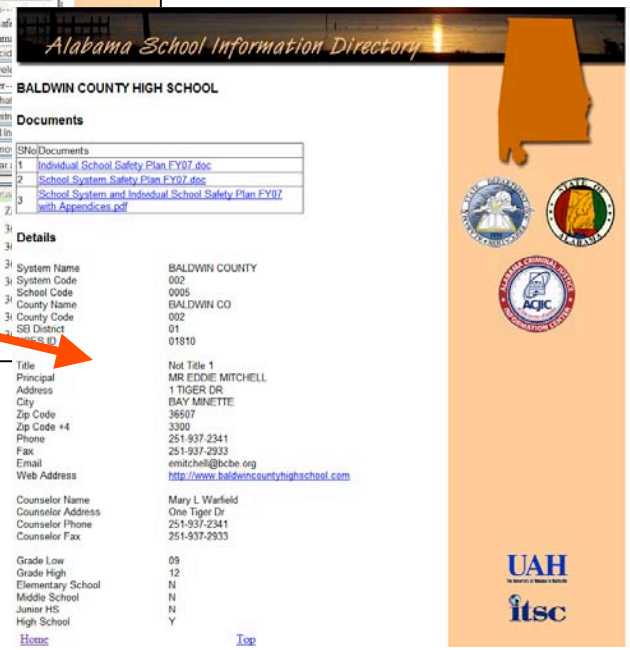
GeoRSS feed of plume centroids with KML outline (polygon) of plume extents for determination of what schools fall within **hazardous zone**.

Centroids of plume time steps



School **contact information** and **emergency plans**

Schools within Plume Extents



Display (and list) of school's falling within the hazardous zone of a predicted plume.

DHS Viewers

Preliminary effort – plan to use GeoRSS to generically publish metadata from digital data registry to demonstrate interoperability across multiple visualization packages.

The trend at the state level is still towards proprietary solutions.